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ABSTRACT

This document, which is intended as a guide for work force preparation program providers, details the Illinois occupational skill standards for programs preparing students for employment in occupations in the architectural drafting cluster. The document begins with a brief overview of the Illinois perspective on occupational skill standards and credentialing, the process used to develop the skill standards, and assumptions underlying the standards. Presented next are skill standards for 25 tasks typically performed by workers in the architectural drafting cluster. Each skill standard statement contains the following components: (1) the actual skill standard (including the conditions of performance, work to be performed, and performance criteria); (2) performance elements and assessment criteria; and (3) a recommended assessment and credentialing approach. The following are among the tasks for which skill standards are provided: measure using scales; draw geometric constructions; construct multiview and dimensional drawings; draw architectural plans; and check completed architectural plans. The following items are appended: glossary; list of Illinois Occupational Skill Standards and Credentialing Council

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members; list of Transportation, Distribution, and Logistics Subcouncil members; list of Architectural Drafting Cluster Standards Development Committee members; Transportation, Distribution, and Logistics Subcouncil Architectural Drafting Cluster skill standards recognition proposal; and list of necessary workplace skills. (MN)

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ILLINOIS

OCCUPATIONAL SKILL STANDARDS

ARCHITECTURAL DRAFTING CLUSTER

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ILLINOIS OCCUPATIONAL SKILL STANDARDS

ARCHITECTURAL DRAFTING CLUSTER

Endorsed for Illinois
by the
Illinois Occupational Skill Standards and
Credentialing Council

MESSAGE TO ILLINOIS CITIZENS

Dear Citizens of Illinois:

Preparing youth and adults to enter the workforce and to be able to contribute to society throughout their lives is critical to the economy of Illinois. Public and private interest in establishing national and state systems of industry-driven skill standards and credentials is growing in the United States, especially for occupations that require less than a four-year college degree. This interest stems from the understanding that the United States will increasingly compete internationally and the need to increase the skills and productivity of the front-line workforce. The major purpose of skill standards is to promote education and training investment and ensure that this education and training enables students and workers to meet industry standards that are benchmarked to our major international competitors.

The Illinois Occupational Skill Standards and Credentialing Council (IOSSCC) has been working with industry subcouncils, the Illinois State Board of Education and other partnering agencies to adopt, adapt and/or develop skill standards for high-demand occupations. Skill standards products are being developed for a myriad of industries, occupational clusters and occupations. This document represents the collaborative effort of the Transportation, Distribution and Logistics Subcouncil, Communications/Information Technology Subcouncil, and the Architectural Drafting Cluster Standards Development Committee.

These skill standards will serve as a guide to workforce preparation program providers in defining content for their programs and to employers to establish the skills and standards necessary for job acquisition. These standards will also serve as a mechanism for communication among education, business, industry and labor.

We encourage you to review these standards and share your comments. This effort has involved a great many people from business, industry and labor. Comments regarding their usefulness in curriculum and assessment design, as well as your needs for in-service and technical assistance in their implementation are critical to our efforts to move forward and improve the documents.

Questions concerning this document may be directed to:

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We look forward to your comments.

Sincerely,

The Members of the IOSSCC

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THE ILLINOIS PERSPECTIVE

The Illinois Occupational Skill Standards and Credentialing Council (IOSSCC) endorses occupational skill standards and credentialing systems for occupations that (a) require basic workplace skills and technical training, (b) provide a large number of jobs with either moderate or high earnings, and (c) provide career advancement opportunities to related occupations with moderate or high earnings. The nine-member Council was established by the Occupational Skill Standards Act (PA 87-1210). The Council, representing business, industry and labor and working with the Illinois State Board of Education in partnership with the Illinois Community College Board, Illinois Board of Higher Education, Illinois Department of Employment Security and Illinois Department of Commerce and Community Affairs, has created a common vision for workforce development in Illinois.

Vision

It is the vision of the IOSSCC to develop a statewide system of industry-defined and recognized skill standards and credentials for all major skilled occupations providing strong employment and earnings opportunities in Illinois. Information related to occupational employment and earning opportunities is determined by the Illinois Occupational Information Coordinating Committee (IOICC) in cooperation with business and industry.

Subcouncils and Standards Development Committees

Under the direction of the Council, and in cooperation with organizations such as the Illinois Chamber of Commerce, the Illinois AFL-CIO, the Illinois Manufacturers' Association, and others, Industry Subcouncils have been formed to review, approve and promote occupational skill standards and credentialing systems. The Industry Subcouncils are Agriculture and Natural Resources; Applied Science and Engineering*; Business and Administrative Information Services; Communications/Information Technology; Construction*; Education and Training Services*; Energy and Utilities*; Financial Services; Health and Social Services; Hospitality; Legal and Protective Services*; Manufacturing; Marketing and Retail Trade; and Transportation, Distribution and Logistics. (*Subcouncils currently being formed.)

The Standards Development Committees, composed of business, labor and education representatives, are experts in the related occupational cluster and work with the product developer to

- Develop or validate occupational skill standards;
- Identify related academic skills;
- Develop or review assessment or credentialing approaches; and
- Recommend endorsement of the standards and credentialing system to the industry subcouncil.

Expected Benefits for Employers, Educators, Students and Workers

Occupational skill standards and credentialing systems are being developed and promoted by the IOSSCC to improve Illinois' competitiveness. Such standards and credentialing systems provide a common language for employers, workers, students and education and training providers to communicate skill requirements and quality expectations for all major industry and occupational areas.

For Employers, skill standards will

- Improve employee recruitment and retention by more clearly identifying skill requirements;
- Encourage improved responsiveness and performance of education and training providers;
- Enlarge the pool of skilled workers; and
- Focus attention on the importance of training investment.

For Education and Training Providers, skill standards will

- Provide information on all major industries and occupations;
- Contribute to program and curriculum development;
- Strengthen relationships between educators and training providers; and
- Improve career planning.

For Students and Workers, skill standards will

- Foster better decision making concerning careers and the training necessary to acquire well-paying jobs;
- Allow more effective communication with employers about what they know and can do; and
- Allow more effective work with employers in career development and skill upgrading.

IOSSCC Requirements for Occupational Skill Standards

Any occupational skill standards and credentialing system seeking IOSSCC endorsement must

- Represent an occupation or occupational cluster that meets the criteria for IOSSCC endorsement;
- Address both content and performance standards for critical work functions and activities for an occupation or occupational area;
- Ensure formal validation and endorsement by a representative group of employers and workers within an industry;
- Provide for review, modification and revalidation by an industry group a minimum of once every five years;
- Award credentials based on assessment approaches that are supported and endorsed by the industry and consistent with nationally recognized guidelines for validity and reliability;
- Provide widespread access and information to the general public in Illinois; and
- Include marketing and promotion by the industry in cooperation with the partner state agencies.

Definitions and Endorsement Criteria

The definitions and endorsement criteria are designed to promote the integration of existing and future industry-recognized standards, as well as the integration of the Illinois academic and occupational skill standards. Because all skill standards must address the critical work functions and activities for an occupation or industry/occupational area, the Council further defined three major components:

- ***Conditions of Performance***: The information, tools, equipment and other resources provided to a person for a work performance.
- ***Statement of Work***: A description of the work to be performed by a person.
- ***Performance Criteria***: The criteria used to determine the required level of performance. These criteria could include product characteristics (e.g., accuracy levels, appearance), process or procedural requirements (e.g., safety, standard professional procedures) and time and resource requirements.

The IOSSCC is currently working with the Illinois State Board of Education and other state agencies to integrate the occupational standards with the Illinois Learning Standards which describe what students should know and be able to do as a result of their education. The Council is also working to integrate workplace skills—problem solving, critical thinking, teamwork, etc.—with both the Learning Standards and the Occupational Skill Standards.

The Illinois Model

Illinois Occupational Skill Standards describe what people should know and be able to do and how well these skills and knowledge will be demonstrated in an occupational setting. They focus on the most critical work performances for an occupation or occupational area. As seen in the following model, Illinois Occupational Skill Standards contain at least these areas:

- Performance Area
- Performance Skill
- Skill Standard
- Performance Elements
- Performance Assessment Criteria

Illinois Occupational Skill Standards also carry a coding at the top of each page identifying the state, fiscal year in which standards were endorsed, subcouncil abbreviation, cluster abbreviation and standard number. For example, the twenty-fifth skill standard in the Architectural Drafting Cluster, which has been developed by the Transportation, Distribution and Logistics, would carry the following coding: IL.00.TRANS.ADC.25.

A model for Illinois Occupational Skill Standards showing the placement of the coding and providing a description of each area within a standard is contained on the following page.

SUMMARY OF WORK TO BE PERFORMED. SUMMARY IS BRIEF AND BEGINS WITH AN ACTION VERB.

IL.FY.SUBCOUNCIL. CLUSTER. STANDARD NO.

PERFORMANCE AREA

SKILL STANDARD

CONDITIONS OF PERFORMANCE

A comprehensive listing of the information, tools, equipment and other resources provided to the person(s) performing the work.

WORK TO BE PERFORMED

An overview of the work to be performed in demonstrating the performance skill standard. This overview should address the major components of the performance. The detailed elements or steps of the performance are listed under "Performance Elements."

PERFORMANCE CRITERIA

The assessment criteria used to evaluate whether the performance meets the standard. Performance criteria specify product/outcome characteristics (e.g., accuracy levels, appearance, results, etc.) and process or procedure requirements (e.g., safety requirements, time requirements, etc.).

PERFORMANCE ELEMENTS

Description of the major elements or steps of the overall performance and any special assessment criteria associated with each element.

PERFORMANCE ASSESSMENT CRITERIA

Listing of required testing, certification and/or licensing.

Product and process used to evaluate the performance of the standard.

PRODUCT

Description of the product resulting from the performance of the skill standard.

PROCESS

Listing of steps from the Performance Elements which must be performed or the required order or performance for meeting the standard.

DEVELOPMENTAL PROCESS

After reviewing current labor market information, the Illinois Occupational Skill Standards and Credentialing Council's (IOSSCC's) Standards Development Committee's subcouncil recommended the development of skill standards for architectural drafters. The identified career, Architectural Drafter, meets the criteria established by the IOSSCC for performance skill standard development, education and training requirements, employment opportunities, earnings potential and career opportunities. A product developer knowledgeable of architectural drafting began the process of performance skill identification. The product developer prepared an outline and framework based on the national drafting skills which address the major skills expected in the workplace. The framework addresses skill requirements common to the architectural industry.

Job descriptions which describe the field of architectural drafting and the necessary competencies required, as reflected in related educational programs, texts, and national standards, were solicited and received. Common and accepted references provided reinforcement for the direction given in the framework.

A Standards Development Committee composed of professionals from the architectural drafting field was convened. The framework, initial outline, matrix and drafting skill standards were presented to the Standards Development Committee for review, revision, adjustment and validation. Additional skill standards statements with performance elements and assessment criteria were developed in accordance with the direction established by the IOSSCC and presented to the Standards Development Committee for review and revision. Educators joined the Standards Development Committee at a final meeting to review consistency in terminology and the assessment criteria used. The performance assessment criteria include a product statement that indicates the outcome or end result of performing the skill, as well as a process statement to identify the steps of performance critical to the outcome and/or a specific sequence to be followed. The Standards Development Committee provided drafting examples as a basis for establishing a timeframe for completing the skill and determining the level of difficulty individuals entering the workforce are expected to achieve. The examples are original in nature and were not intended to duplicate existing material. Any similarities to existing drawings or literature are coincidental.

Performance elements and assessment criteria were developed using standard references. The initial and concluding parts of the format establish a standard of personal commitment and serve as a reminder of expected workplace behaviors. The central section varies in length and outlines the specific criteria expected for evaluation in the learning environment and for entry into the workplace. The criteria are behavioral statements of skill standards and, as such, serve as an evaluation tool and workplace guide rather than as a prescription for curriculum.

A complete set of skill standards was provided to the Transportation, Distribution and Logistics Subcouncil. The subcouncil approved and recommended the standards be endorsed by the IOSSCC. A statement of assumptions accompanies this document to provide context for the standards document.

ASSUMPTIONS FOR ARCHITECTURAL DRAFTING CLUSTER STANDARDS

Skill standards statements assume:

1. Workplace skills (employability skills) are expected of all individuals. Socialization skills needed for work are related to lifelong career experience and are not solely a part of the initial schooling process. A listing of these skills is not included with this set of statements.
2. Specific policies and procedures of the work site will be made known to the individual and will be followed.
3. Time elements outlined for the skill standards result from the experience and consideration of the panel of experts who made up the Standards Development Committee.
4. Skills will progress from simple to complex. Once a skill has been successfully performed, it will be incorporated into more complex skills.
5. Skill standards describe the skill only and do not detail the background knowledge or theory related to the particular skill base. Although the skill standard enumerates steps to successful demonstration, rote approaches to the outcomes are not prescribed.
6. All work is expected to be completed in an expedient manner.
7. Skill standards are selected because they meet workplace needs and are designed to meet professional standards of practice.
8. Skill standards in no way supersede or take the place of certification or graduation from accredited programs of study.
9. Drafting equipment and tools are maintained and kept clean.
10. Skills are identifiable, measurable standards of practice which practitioners may use to demonstrate competency to employers. Practitioners and graduates may develop portfolios of competencies to accompany them into a competitive workplace.
11. Skill standards are written to show what the drafter is required to do in order to demonstrate competency.
12. Skill standard completion time is based on hand or CAD skill performance. The Standards Development Committee emphasizes that the time indicator may be the same whether the drafter completes the skill by hand or by CAD. Technological advances in CAD can reduce the amount of time necessary for creating and/or modifying existing CAD drawings. CAD also has the capability of producing neater, more accurate drawings and designs than does drafting by hand.
13. Drafters are able to create freehand sketches and transfer information from sketches to a drawing.
14. Drafters are able to operate hardware by (1) operating and adjusting input devices (e.g., mouse, keyboard, digitizer), (2) operating and adjusting output devices (e.g., printers, plotters), (3) correctly operating and handling storage media, (4) starting and shutting down a work station, (5) adjusting a monitor control for maximum comfort and usability, and (6) recognizing the availability of information services (e.g., electronic mail, bulletin boards).
15. Drafters are able to operate the system by (1) starting and exiting a software program as required, (2) identifying, creating and using a directory structure and changing directory paths, (3) demonstrating proper file maintenance and backup procedures, (4) translating, importing, and exporting data files between formats (e.g., IGES), (5) using on-line help, (6) saving drawings to storage devices, and (7) minimizing file size.
16. A company will have a standard title block for its facility. The Standard Development Committee stresses that it is important for all individuals to know the importance and application of a title block. It is not necessary to develop a title block, but important to be able to complete one.
17. When unfamiliar with symbols used in various areas of drafting, drafters are able to locate necessary information from reference sources.
18. Individuals can communicate, using standard industry terminology (Attachment L), with professionals in the architectural field.

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PERFORMANCE SKILL LEVELS

	DRAFTS PERSON	TECHNICAL ASSISTANT	ILLUSTRATOR
BASIC DRAFTING			
Identify and Apply the "Alphabet of Lines"	•	•	•
Measure Using Scales	•	•	•
Construct Proper Lettering	•	•	•
Draw Geometric Constructions	•	•	•
Construct a Multiview (Orthographic 2-D) Drawing	•	•	•
Develop a Pictorial (3-D) Drawing	•	•	•
Reference Information from Available Sources	•	•	•
Dimension Drawings	•	•	•
Apply Notes and Leaders	•	•	•
Make Drawing Revisions	•	•	•
ARCHITECTURAL PLANS			
Draw Plot Plan	•	•	•
Draw Floor Plan	•	•	•
Draw Door and Window Schedules	•	•	
Draw Foundation Plan	•	•	
Draw Roof Framing Plan	•	•	
Draw Exterior Elevation Views	•	•	•
Draw Interior Elevations	•	•	•
Construct Stair Section Drawings		•	
Construct Interior Finish Schedules	•	•	
Draw Wall Section	•	•	
Draw Door Details	•	•	
Draw Window Details	•	•	
Draw Interior One-Point Perspective Views		•	•
Draw Exterior Two-Point Perspective Views		•	•
Check Complete Architectural Plans		•	

IDENTIFY AND APPLY THE "ALPHABET OF LINES."

SKILL STANDARD

CONDITIONS OF PERFORMANCE

Given the following:

Drawing (Sample drawing in Attachment B)
Drafting kit (Attachment A) or CAD workstation
Drawing paper with title block and border
Drafting reference text

WORK TO BE PERFORMED

Identify and apply the "Alphabet of Lines."

PERFORMANCE CRITERIA

All lines are distinct, easily read and of the appropriate line weight and type.

The skill is completed within a one-hour time period. (Time is based on using drawing in Attachment B to complete the skill.)

PERFORMANCE ELEMENTS

1. Identify "Alphabet of Lines" by name, line type variation, order of usage and application on technical drawings.
   a. Object line
   b. Hidden line
   c. Center line
   d. Section line
   e. Dimension line
   f. Extension line
   g. Cutting plane line
   h. Short break line
   i. Long break line
   j. Phantom line
2. Duplicate drawing using proper line thickness and the "Alphabet of Lines."
3. Darken finish lines.
4. Check drawing.

PERFORMANCE ASSESSMENT CRITERIA

PRODUCT

The completed drawing illustrates the "Alphabet of Lines" have been correctly applied.

PROCESS

All performance elements are critical for correctly applying the "Alphabet of Lines" on a drawing. The steps of performance are numbered to show an appropriate sequence for completing the skill.

MEASURE USING SCALES.

SKILL STANDARD

CONDITIONS OF PERFORMANCE

Given the following:

Drafting kit (Attachment A)
Drawing paper with title block and border
Drafting reference text

WORK TO BE PERFORMED

Perform measurements using scales.

PERFORMANCE CRITERIA

The skill is completed within a one-hour time period.

PERFORMANCE ELEMENTS

1. Research types of measurement systems used in industry.
   a. Inch/foot system
   b. Metric (SI) system
2. Research different types of scales utilized and how they are used for measurements.
   a. Architectural
   b. Metric
   c. Engineering
   d. Civil
3. Research scaling and proportion.
   (e.g., 1:1, 100:1, ¼"=1'-0", ¾ size, 1:50, 1"=1000', etc.)
4. Draw horizontal line five inches in length and apply scaling techniques by measuring line to the following scales. (Print correct scaled length above each line.)
   a. Architectural scale (1:1, 1/8"=1'-0", ¼"=1'-0", 3/8"=1'-0", ½"=1'-0", ¾"=1'-0", 1"=1'-0", ½ size, 1-1/2 size, 1/48 size)
   b. Metric scale (1:2 ratio, 1:20, 1:200, 1:2000, 1:5, 1:33 1/3, 1:25, 1:75)
   c. Engineer scale (full size, ½ size, 1"=100")
   d. Civil scale (1"=5000', 1"=50', half size)
5. Check results.

PERFORMANCE ASSESSMENT CRITERIA

PRODUCT

Using scales to measure is correctly completed.

PROCESS

All performance elements are critical for correctly measuring using scales.

CONSTRUCT PROPER LETTERING.

SKILL STANDARD

CONDITIONS OF PERFORMANCE

Given the following:

Sample text (Attachment C)
Drafting kit (Attachment A)
Drawing paper with title block and border (8 ½ "x 11")
Drafting reference text

WORK TO BE PERFORMED

Construct proper lettering.

PERFORMANCE CRITERIA

All lines are distinct, easily read and of the appropriate line weight and type.

The skill is completed within a one-hour time period. (Time is based on using text in Attachment C to complete the skill.)

PERFORMANCE ELEMENTS

1. Use T-square, parallel bar, or lettering guide to draw two guidelines 1/8" apart horizontally across top of drawing paper.
2. Skip down 1/4" and draw another pair of guidelines 1/8" apart horizontally. Repeat line pairs across paper from top down to bottom.
3. Reproduce passage from text (letters and numbers), fill the drawing completely by printing 1/8" high vertical Gothic capital letters within guidelines.
4. Form each letter and number carefully and consistently.
5. Check drawing.

PERFORMANCE ASSESSMENT CRITERIA

PRODUCT

The completed drawing illustrates the lettering has been constructed properly.

PROCESS

All performance elements are critical for constructing lettering properly on a drawing. The steps of performance are numbered to show an appropriate sequence for completing the skill.

DRAW GEOMETRIC CONSTRUCTIONS.

SKILL STANDARD

CONDITIONS OF PERFORMANCE

Given the following:

Drafting kit (Attachment A) or CAD workstation
Drawing paper with title block and border
Drafting reference text

WORK TO BE PERFORMED

Draw geometric constructions.

PERFORMANCE CRITERIA

The completed drawing illustrates a series of geometric shapes and activities.

All lines are distinct, easily read and of the appropriate line weight and type.

The finished drawing is neat and clear of smudges and completed within a two-hour time period.

PERFORMANCE ELEMENTS

1. Draw geometric shapes without use of templates or CAD libraries.
   a. Circles
   b. Regular polygons with four, seven, and eight sides
   c. Pentagon inscribed within measured circle
   d. Hexagon circumscribed about measured circle
   e. Ellipse
   f. Parabola
   g. Triangles whose angles measure 30,60,90; 71,62,47; 20,80,80; 10, 58, 112
   h. Tangent lines tangent to two circles; tangent to two arcs
   i. Arcs thru three points; tangent to two circles
2. Check drawing.

PERFORMANCE ASSESSMENT CRITERIA

PRODUCT

The completed drawing correctly illustrates the required geometric shapes.

PROCESS

All performance elements are critical for producing a drawing illustrating a series of geometric shapes.

CONSTRUCT A MULTIVIEW (ORTHOGRAPHIC 2-D) DRAWING.

SKILL STANDARD

CONDITIONS OF PERFORMANCE

Given the following:

Drawing (Sample drawing in Attachment D)
Drafting kit (Attachment A) or CAD workstation
Drawing paper with title block and border
Drafting reference text

WORK TO BE PERFORMED

Construct a multiview (orthographic 2-D) drawing.

PERFORMANCE CRITERIA

The drawing illustrates three views of an object with correct line representation.

All lines are distinct, easily read and of the appropriate line weight and type.

The finished drawing is neat and clear of smudges and completed within a half-hour time period. (Time is based on using drawing in Attachment D to complete the skill).

PERFORMANCE ELEMENTS

1. Select proper views.
2. Identify types of lines to be used.
3. Construct full scale (1:1) orthographic 3-view drawing using third angle projection with top, front, and right side views. Show all hidden features and centerlines.
4. Complete title block by selecting lettering style and size.
5. Apply proper thickness to all lines.
6. Check drawing.

PERFORMANCE ASSESSMENT CRITERIA

PRODUCT

The finished multiview (orthographic 2-D) drawing is constructed correctly.

PROCESS

All performance elements are critical for constructing a multiview (orthographic 2-D) drawing. The steps of performance are numbered to show an appropriate sequence for completing the skill.

DEVELOP A PICTORIAL (3-D) DRAWING.

SKILL STANDARD

CONDITIONS OF PERFORMANCE

Given the following:

Drawing (Sample drawing in Attachment E)
Drafting kit (Attachment A) or CAD workstation
Drawing paper with title block and border
Drafting reference text

WORK TO BE PERFORMED

Develop a pictorial (3-D) drawing.

PERFORMANCE CRITERIA

The drawing has a correct view orientation.

All lines are distinct, easily read and of the appropriate line weight and type.

The finished drawing is neat and clear of smudges and completed within a one-hour time period. (Time is based on using drawing in Attachment E to complete the skill.)

PERFORMANCE ELEMENTS

1. Lay out isometric corner with left and right side lines each 30 degrees up from horizontal and third line at a vertical, with all three lines joining in a common intersection.
2. Use isometric corner to construct full scale (1:1) basic isometric drawing, including hidden features.
3. Complete title block by selecting lettering style and size.
4. Apply proper thickness to lines.
5. Check drawing.

PERFORMANCE ASSESSMENT CRITERIA

PRODUCT

The completed pictorial (3-D) drawing is correctly developed.

PROCESS

All performance elements are critical for correctly preparing a pictorial (3-D) drawing. The steps of performance are numbered to show an appropriate sequence for completing the skill.

REFERENCE INFORMATION FROM AVAILABLE SOURCES.

SKILL STANDARD

CONDITIONS OF PERFORMANCE

Given the following:

Drafting kit (Attachment A)
Drafting reference text
Manufacturers' catalogs

WORK TO BE PERFORMED

Reference and record information from available sources.

PERFORMANCE CRITERIA

All referenced information is recorded in notes.

The skill is completed within a one-hour time period.

PERFORMANCE ELEMENTS

1. Locate information from appropriate reference materials. (See the following examples.)
   a. Find tap drill size for a ½" nominal diameter American National Unified NF screw thread; record information.
   b. Find width across flats for 7/8" diameter American National Standard hexagon cap screw; record information.
   c. Find outside eye diameter of 5/16" nominal size American National Standard Cotter Pin; record information.
   d. Find ANS abbreviations for: diameter, fillet, required, nominal, schedule, and section; record information.
2. Select catalog product and record its specifications. (For example, select window from window manufacturer's catalog and record its specifications; select similar sized window from different manufacturer's catalog and record its specs.) Note all differences (e.g., rough opening size, part number, etc.).

PERFORMANCE ASSESSMENT CRITERIA

PRODUCT

The information from available sources is correctly referenced and recorded.

PROCESS

All performance elements are critical for correctly referencing and recording information from available sources.

DIMENSION DRAWINGS.

SKILL STANDARD

CONDITIONS OF PERFORMANCE

Given the following:

Two copies of a drawing (Sample drawing in Attachment D)
Drafting kit (Attachment A) or CAD workstation
Drafting reference text

WORK TO BE PERFORMED

Construct and dimension drawings.

PERFORMANCE CRITERIA

All major features on the drawings are appropriately dimensioned, neat, and clear of smudges.

All lines are distinct, easily read and of the appropriate line weight and type.

The drawing is dimensioned within a two-hour time period. (Time is based on using drawing in Attachment D to complete the skill.)

PERFORMANCE ELEMENTS

1. Identify dimensioning styles and methods (e.g., coordinate, linear/datum).
2. Select 2-D views to be dimensioned.
3. Dimension views on first drawing copy using coordinate dimensioning.
4. Dimension from one feature across to next, feature in order, until all dimensions have been located, drawn, and lettered. Dimension horizontally and vertically as needed until all features are dimensioned.
5. Dimension views on second drawing copy using linear (datum) as style of dimensioning.
6. Start all dimensions from common datum corner, designated 0, 0, 0 and continue to edge(s) of each feature being dimensioned. Dimension in this manner both vertically and horizontally until all dimensions have been located, drawn, and lettered. Continue until all features have been dimensioned.
7. Dimension complex shapes when appropriate (e.g., spheres, cylinders, tapers, pyramids).
8. Apply appropriate line thickness and type to dimension, extension, and center lines.
9. Check drawing.

PERFORMANCE ASSESSMENT CRITERIA

PRODUCT

The completed drawings are dimensioned correctly, showing all necessary details and information.

PROCESS

All performance elements are critical for correctly dimensioning drawings. The steps of performance are numbered to show an appropriate sequence for completing the skill.

APPLY NOTES AND LEADERS.

SKILL STANDARD

CONDITIONS OF PERFORMANCE

Given the following:

Drawing (Sample drawing in Attachment F)
Drafting kit (Attachment A) or CAD workstation
Drafting reference text

WORK TO BE PERFORMED

Apply notes and leaders.

PERFORMANCE CRITERIA

The finished drawing is appropriately labeled, neat and clear of smudges.

All lines are distinct, easily read and of the appropriate line weight and type.

The skill is completed within a half-hour time period. (Time is based on using drawing in Attachment F to complete the skill.)

PERFORMANCE ELEMENTS

1. Apply appropriate notes and/or leaders to drawing.
2. Apply appropriate lettering, line thickness and type.
3. Check drawing.

PERFORMANCE ASSESSMENT CRITERIA

PRODUCT

The completed drawing illustrates correct application of notes and leaders.

PROCESS

All performance elements are critical for correctly applying notes and leaders on a drawing. The steps of performance are numbered to show an appropriate sequence for completing the skill

MAKE DRAWING REVISIONS.

SKILL STANDARD

CONDITIONS OF PERFORMANCE

Given the following:

Drawing (Sample drawing in Attachment G)
Drafting kit (Attachment A) or CAD workstation
Drafting reference text
Departmental policy and procedures

WORK TO BE PERFORMED

Make drawing revisions.

PERFORMANCE CRITERIA

All major features on the drawings are neat and clear of smudges.

All lines are distinct, easily read and of the appropriate line weight and type.

The skill is completed within a one-hour time period. (Time is based on using drawing in Attachment G to complete the skill.)

PERFORMANCE ELEMENTS

1. Review drawing revision (change) procedures.
2. Identify drawing to be modified.
3. Make modifications to drawing.
4. Construct a revision table on drawing and, after completing changes (revisions), record them properly on revision table.
5. Apply appropriate line thickness and type.
6. Check drawing.

PERFORMANCE ASSESSMENT CRITERIA

PRODUCT

The completed drawing illustrates all revisions have been correctly made and properly recorded.

PROCESS

All performance elements are critical for correctly revising and recording changes on a drawing. The steps of performance are numbered to show an appropriate sequence for completing the skill.

DRAW PLOT PLAN.

SKILL STANDARD

CONDITIONS OF PERFORMANCE

Given the following:

Drafting kit (Attachment A) or CAD workstation
Drawing paper with title block and border
Survey drawing
Site layout sketch
Written legal description
Local codes

WORK TO BE PERFORMED

Draw plot plan.

PERFORMANCE CRITERIA

The plan includes all original ground features and accommodates any added features.

All dimensions, notes and references are clearly shown.

All lines are distinct, dark, easily read and of the appropriate line weight and type.

The finished drawing is neat and clear of smudges and completed within a four-hour time period. (Time is based on using sample in Appendix H to complete the skill.)

PERFORMANCE ELEMENTS

1. Review design data and site layout sketch.
2. Indicate existing ground features on drawing (e.g., utilities, contours, landscape features, etc.).
3. Indicate boundaries, easement, and established setbacks of site and give bearing.
4. Place structure on site.
5. Locate and identify bench mark and elevation level.
6. Draw additional construction extending beyond exterior walls of structure (e.g., driveways, sidewalks, patios, decks, proposed utilities, etc.).
7. Draw proposed contour lines and indicate grade elevations.
8. Indicate modifications of any existing site elements.
9. Draw proposed landscape features.
10. Indicate scale of drawing and view title.
11. Indicate north arrow.
12. Check drawing.

PERFORMANCE ASSESSMENT CRITERIA

PRODUCT

The finished plot plan is correctly drawn and clearly shows all details and information.

PROCESS

All performance elements are critical for plot plan construction. The steps of performance are numbered to show an appropriate sequence for completing the skill.

DRAW FLOOR PLAN.

SKILL STANDARD

CONDITIONS OF PERFORMANCE

Given the following:

Drafting kit (Attachment A) or CAD workstation
Drawing paper with title block and border
Floor plan (Sample floor plan in Attachment I)
Construction specifications

WORK TO BE PERFORMED

Draw floor plan.

PERFORMANCE CRITERIA

The floor plan illustrates the location of all rooms and all specifications.

All dimensions, notes and references are clearly shown.

All lines are distinct, dark, easily read and of the appropriate line weight and type.

The finished drawing is neat and clear of smudges and completed within an eight-hour time period. (Time is based on using floor plan in Attachment I to complete the skill.)

PERFORMANCE ELEMENTS

1. Review preliminary sketches and notes.
2. Lay out exterior limits of structure.
3. Draw rooms and interior walls.
4. Draw kitchen and bathroom features.
5. Indicate openings in exterior and interior walls.
6. Draw door and window sizes specified by floor plan sketch.
7. Add dimensions, notes and room labels.
8. Draw material symbols.
9. Indicate scale of drawing and view title.
10. Indicate north arrow.
11. Check drawing.

PERFORMANCE ASSESSMENT CRITERIA

PRODUCT

The finished floor plan is correctly drawn and clearly shows all details and information.

PROCESS

All performance elements are critical for correct floor plan construction. The steps of performance are numbered to show an appropriate sequence for completing the skill.

DRAW DOOR AND WINDOW SCHEDULES.

SKILL STANDARD

CONDITIONS OF PERFORMANCE

Given the following:

Drafting kit (Attachment A) or CAD workstation
Drawing paper with title block and border
Floor plan (Sample floor plan in Attachment I)
Door and window schedule format
Construction specifications

WORK TO BE PERFORMED

Draw door and window schedules.

PERFORMANCE CRITERIA

The schedules appear on the floor plan in parallel columns.

All dimensions, notes and references are clearly shown.

All lines are distinct, dark, easily read and of the appropriate line weight and type.

The finished drawing is neat and clear of smudges and completed within a one-hour time period. (Time is based on using floor plan in Attachment I to complete the skill.)

PERFORMANCE ELEMENTS

1. Collect notes and format(s) pertaining to schedules.
2. Lay out schedules on floor plan.
3. Make headings for window schedule.
4. Make headings for door schedule.
5. Lay out lettering guidelines.
6. Letter schedules.
7. Check drawing.

PERFORMANCE ASSESSMENT CRITERIA

PRODUCT

The finished door and window schedules are correctly drawn and clearly show all details and information.

PROCESS

All performance elements are critical for door and window schedule construction. The steps of performance are numbered to show an appropriate sequence for completing the skill.

DRAW FOUNDATION PLAN.

SKILL STANDARD

CONDITIONS OF PERFORMANCE

Given the following:

Drafting kit (Attachment A) or CAD workstation
Drawing paper with title block and border
Floor plan (Sample floor plan in Attachment I)
Sketches
Construction specifications

WORK TO BE PERFORMED

Draw foundation plan.

PERFORMANCE CRITERIA

All labels, notes, symbols and reference dimensions meet stated specifications.

All dimensions, notes and references are clearly shown.

All lines are distinct, dark, easily read and of the appropriate line weight and type.

The finished drawing is neat and clear of smudges and completed within a four-hour time period. (Time is based on using floor plan in Attachment I to complete the skill.)

PERFORMANCE ELEMENTS

1. Review floor plan, sketches and notes.
2. Trace common features from floor plan.
3. Draw foundation, structural supports and footing outline.
4. Indicate floor drains.
5. Add dimensions.
6. Indicate labels, notes, symbols and references.
7. Indicate scale of drawing and view title.
8. Indicate north arrow.
9. Check drawing.

PERFORMANCE ASSESSMENT CRITERIA

PRODUCT

The finished foundation plan is correctly drawn and clearly shows all details and information.

PROCESS

All performance elements are critical for foundation plan construction. The steps of performance are numbered to show an appropriate sequence for completing the skill.

DRAW ROOF FRAMING PLAN.

SKILL STANDARD

CONDITIONS OF PERFORMANCE

Given the following:

Drafting kit (Attachment A) or CAD workstation
Drawing paper with title block and border
Preliminary roof framing sketch
Floor plan (Sample floor plan in Attachment I)
Foundation plan (Sample foundation plan in Attachment J)
Construction specifications

WORK TO BE PERFORMED

Draw roof framing plan.

PERFORMANCE CRITERIA

The roof framing plan shows the rafter layout, cornice, roof type and pitch and construction specified in the request for plan.

All labels, notes, dimensions and material symbols are correctly shown.

All lines are distinct, dark, easily read and of the appropriate line weight and type.

The finished drawing is neat and clear of smudges and completed within an eight-hour time period. (Time is based on using floor plan in Attachment I to complete the skill.)

PERFORMANCE ELEMENTS

1. Review floor plan, foundation plan and preliminary roof framing sketch.
2. Trace exterior wall outline from floor plan.
3. Confirm roof style (e.g., gable, shed, hip, etc.) and cornice overhang size.
4. Draw center ridge board(s).
5. Draw all rafters, jack rafters, etc., with specified on-center spacing.
6. Indicate any special construction (e.g., around chimney, etc.).
7. Add labels, notes and dimensions.
8. Indicate material symbols.
9. Indicate scale of drawing and view title.
10. Indicate north arrow.
11. Check drawing.

PERFORMANCE ASSESSMENT CRITERIA

PRODUCT

The finished roof framing plan is correctly drawn and clearly shows all details and information.

PROCESS

All performance elements are critical for roof framing plan construction. The steps of performance are numbered to show an appropriate sequence for completing the skill.

DRAW EXTERIOR ELEVATION VIEWS.

SKILL STANDARD

CONDITIONS OF PERFORMANCE

Given the following:

Drafting kit (Attachment A) or CAD workstation
Drawing paper with title block and border
Floor plan (Sample floor plan in Attachment I)
Foundation plan (Sample foundation plan in Attachment J)
Roof plan (Sample roof plan in Attachment K)
Construction specifications

WORK TO BE PERFORMED

Draw front, rear, left and right side exterior elevation views.

PERFORMANCE CRITERIA

The drawings describe the exterior of the structure.

All labels, notes, dimensions and material symbols are correctly shown.

All lines are distinct, dark, easily read and of the appropriate line weight and type.

The drawing is neat and clear of smudges and completed within a 12-hour time period. (Time is based on using floor and roof plan in Attachments I, J and K to complete the skill.)

PERFORMANCE ELEMENTS

1. Review design data and layouts.
2. Draw grade line.
3. Project construction lines from plans.
4. Indicate finished floor level(s).
5. Indicate finished ceiling level(s).
6. Draw and detail windows and doors.
7. Draw roof outline.
8. Letter wall and roof finishes, roof pitch, chimney, decks, and porches.
9. Add dimensions, notes and labels.
10. Indicate scale of drawing and view title.
11. Check drawing.

PERFORMANCE ASSESSMENT CRITERIA

PRODUCT

The finished elevations views are correctly drawn and clearly show all necessary details and information.

PROCESS

All performance elements are critical for correctly drawing elevation views. The steps of performance are numbered to show an appropriate sequence for completing the skill.

DRAW INTERIOR ELEVATIONS.

SKILL STANDARD

CONDITIONS OF PERFORMANCE

Given the following:

Drafting kit (Attachment A) or CAD workstation
Drawing paper with title block and border
Floor plan (Sample floor plan in Attachment I)
Wall section
Construction Specifications

WORK TO BE PERFORMED

Draw interior elevations (kitchen elevations are recommended for assessment process).

PERFORMANCE CRITERIA

The drawing illustrates the layout of the interior features of the structure.

All labels, notes, dimensions and material symbols are correctly shown.

All lines are distinct, dark, easily read and of the appropriate line weight and type.

The finished drawing is neat and clear of smudges and completed within a six-hour period. (Time is based on using floor plan in Attachment I to complete the skill.)

PERFORMANCE ELEMENTS

1. Review design data and layouts.
2. Indicate true width of walls.
3. Indicate all openings in interior or exterior walls.
4. Indicate typical sections of standard built-in features.
5. Note wall materials (or finish).
6. Indicate fixtures, built-ins, trim and molding, and utilities.
7. Add dimensions, notes and labels.
8. Indicate scale of drawing and view title.
9. Darken finish lines.
10. Check drawing.

PERFORMANCE ASSESSMENT CRITERIA

PRODUCT

The finished interior elevations plan is correctly drawn and clearly shows all details and information.

PROCESS

All performance elements are critical for construction of the interior elevations plan. The steps of performance are numbered to show an appropriate sequence for completing the skill.

CONSTRUCT STAIR SECTION DRAWINGS.

SKILL STANDARD

CONDITIONS OF PERFORMANCE

Given the following:

Drafting kit (Attachment A) or CAD workstation
Drawing paper with title block and border
Floor plan (Sample floor plan in Attachment I)
Stair specifications

WORK TO BE PERFORMED

Construct stair section drawings.

PERFORMANCE CRITERIA

All risers, treads and landings are exact according to the written specifications.

The floor to floor heights and angles are exact for the stringer.

All lines are distinct, dark, easily read and of the appropriate line weight and type.

The finished drawing is neat and clear of smudges and completed within a four-hour time period. (Time is based on using floor plan in Attachment I to complete the skill.)

PERFORMANCE ELEMENTS

1. Review floor plan and stair specifications.
2. Confirm floor to floor heights.
3. Draw finished floor and finished ceiling lines heights.
4. Calculate and layout risers, treads and landings.
5. Draw stringer.
6. Indicate framing around stairs.
7. Identify materials used to construct stairs.
8. Draw trim features (e.g., handrail(s), tread covers, etc.).
9. Dimension total rise and run.
10. Indicate headroom clearance and stairwell opening.
11. Add dimensions, notes and labels.
12. Check drawing.

PERFORMANCE ASSESSMENT CRITERIA

PRODUCT

The finished stair section drawing is correctly drawn and clearly shows all necessary details and information.

PROCESS

All performance elements are critical for stair section drawing construction. The steps of performance are numbered to show an appropriate sequence for completing the skill.

CONSTRUCT INTERIOR FINISH SCHEDULE.

SKILL STANDARD

CONDITIONS OF PERFORMANCE

Given the following:

Drafting kit (Attachment A) or CAD workstation
Drawing paper with title block and floor plan
Floor plan (Sample floor plan in Attachment I)
Finish schedule format
Interior finish specifications

WORK TO BE PERFORMED

Construct interior finish schedule.

PERFORMANCE CRITERIA

The schedule details all project information for the wall, floor and ceiling finishes.

The needed information is determined from the interior finish specifications.

All lines are distinct, dark, easily read and of the appropriate line weight and type.

The finished drawing is neat and clear of smudges and completed within a two-hour time period. (Time is based on using floor plan in Attachment I to complete the skill.)

PERFORMANCE ELEMENTS

1. Lay out schedule to fit given format.
2. Lay out lettering guidelines.
3. Make headings for each schedule.
4. Letter information into finish schedule.
5. Check drawing.

PERFORMANCE ASSESSMENT CRITERIA

PRODUCT

The finished interior schedule is correctly constructed and clearly shows all necessary details and information.

PROCESS

All performance elements are critical for correct interior finish schedule construction. The steps of performance are numbered to show an appropriate sequence for completing the skill.

DRAW WALL SECTION.

SKILL STANDARD

CONDITIONS OF PERFORMANCE

Given the following:

Drafting kit (Attachment A) or CAD workstation
Drawing paper with title block and border
Floor plan (Sample floor plan in Attachment I)
Foundation plan (Sample foundation plan in Attachment J)
Roof plan (Sample roof plan in Attachment K)
Construction specifications

WORK TO BE PERFORMED

Draw wall section.

PERFORMANCE CRITERIA

All sizes, location, and shapes of the materials are correctly detailed.

The needed information is determined from the roof, floor and foundation plans.

All lines are distinct, dark, easily read and of the appropriate line weight and style.

The finished drawing is neat and clear of smudges and completed within an eight-hour time period. (Time is based on using plans in Attachments I, J and K to complete the skill.)

PERFORMANCE ELEMENTS

1. Review roof, floor, and foundation plans and construction specifications.
2. Draw footing and foundation walls.
3. Draw basement foundation reinforcing steel.
4. Draw floor construction.
5. Draw waterproofing and ground control for foundation walls, around footings (drain tiles), and under basement floor slabs.
6. Draw termite protection.
7. Draw external stud wall construction.
8. Draw floor and ceiling construction.
9. Draw roof construction, overhang, gutter, and method of roof ventilation.
10. Draw wall and ceiling insulation.
11. Add dimensions, notes and labels.
12. Check drawing.

PERFORMANCE ASSESSMENT CRITERIA

PRODUCT

The finished wall section is correctly drawn and clearly shows all necessary details and information.

PROCESS

All performance elements are critical for wall section plan construction. The steps of performance are numbered to show an appropriate sequence for completing the skill.

DRAW DOOR DETAILS.

SKILL STANDARD

CONDITIONS OF PERFORMANCE

Given the following:

Drafting kit (Attachment A) or CAD workstation
Drawing paper with title block and border
Floor plan (Sample floor plan in Attachment I)
Wall section
Manufacturers' catalogs
Construction specifications

WORK TO BE PERFORMED

Draw door details.

PERFORMANCE CRITERIA

The drawing details show the exact size and shape of the materials used in door construction, including door jamb, head and sill.

The required information is determined from the wall section, floor plan, construction specifications and manufacturers' catalogs.

All lines are distinct, dark, easily read and of the appropriate line weight and type.

The finished drawing is neat and clear of smudges and completed within a three-hour period. (Time is based on using floor plan in Attachment I to complete the skill.)

PERFORMANCE ELEMENTS

1. Review wall section, floor plan, construction specifications and manufacturers' catalogs.
2. Draw head, jamb and sill details, including interior and exterior trim finishes.
3. Add dimensions, notes and labels.
4. Check drawing.

PERFORMANCE ASSESSMENT CRITERIA

PRODUCT

The finished door details are correctly drawn and clearly show all necessary details and information.

PROCESS

All performance elements are critical for door details construction. The steps of performance are numbered to show an appropriate sequence for completing the skill.

SKILL STANDARD

CONDITIONS OF PERFORMANCE

Given the following:

Drafting kit (Attachment A) or CAD workstation
Drawing paper with title block and border
Floor plan (Sample floor plan in Attachment I)
Wall section
Manufacturers' catalogs
Construction specifications

WORK TO BE PERFORMED

Draw window details.

PERFORMANCE CRITERIA

The drawing details show the exact size and shape of the materials used in window construction, including doorjamb, head and sill.

The required information is determined from the wall section, floor plan, construction specifications and manufacturers' catalogs.

All lines are distinct, dark, easily read, and of the appropriate line weight and type.

The finished drawing is neat and clear of smudges and completed within a three-hour period. (Time is based on using floor plan in Attachment I to complete the skill.)

PERFORMANCE ELEMENTS

1. Review wall section, floor plan, construction specifications, and manufacturers' catalogs.
2. Draw head, jamb and sill details, including interior and exterior trim finishes.
3. Add dimensions, notes and labels.
4. Check drawing.

PERFORMANCE ASSESSMENT CRITERIA

PRODUCT

The finished window details are correctly drawn and clearly show all necessary details and information.

PROCESS

All performance elements are critical for window details construction. The steps of performance are numbered to show an appropriate sequence for completing the skill.

DRAW INTERIOR ONE-POINT PERSPECTIVE VIEW.

SKILL STANDARD

CONDITIONS OF PERFORMANCE

Given the following:

Drafting kit (Attachment A) or CAD workstation
Drawing paper with title block and border
Floor plan (Sample floor plan in Attachment I)
Interior elevations

WORK TO BE PERFORMED

Create interior one-point perspective view.

PERFORMANCE CRITERIA

The drawing view illustrates the principle of one-point perspective drawing (perspective of kitchen is recommended for assessment process).

The drawing view includes all materials and finishes.

The drawing view shows all depth (except oblique lines) projected to one vanishing point.

All lines are distinct, dark, easily read and of the appropriate line weight and type.

The finished drawing view is neat and clear of smudges and completed within a three-hour time period. (Time is based on using floor plan in Attachment I to complete the skill.)

PERFORMANCE ELEMENTS

1. Review floor plan and interior elevations.
2. Locate picture plane line (PPL).
3. Determine cutting plane line on floor plan.
4. Position floor plan on PPL.
5. Locate ground line (GL).
6. Locate horizontal line (HL).
7. Locate station point (SP).
8. Place elevation on either side of area reserved for perspective drawing.
9. Locate vanishing point on HL.
10. Project frame from floor plan and elevation.
11. Locate all features that touch picture plan line first and project them to GL.
12. Project all horizontal lines from elevation view.
13. Remove all unnecessary lines, and clean drawing.
14. Check drawing.

PERFORMANCE ASSESSMENT CRITERIA

PRODUCT

The finished interior one-point perspective view is correctly drawn and clearly shows all necessary details and information.

PROCESS

All performance elements are critical for correct construction of an interior one-point perspective view. The steps of performance are numbered to show an appropriate sequence of work completion; however, a different sequence of steps may be used.

DRAW EXTERIOR TWO-POINT PERSPECTIVE VIEW.

SKILL STANDARD

CONDITIONS OF PERFORMANCE

Given the following:

Drafting kit (Attachment A) or CAD workstation
Drawing paper with title block and border
Floor plan (Sample floor plan in Attachment I)
Exterior elevations

WORK TO BE PERFORMED

Create exterior two-point perspective view.

PERFORMANCE CRITERIA

The drawing view illustrates the principle of two-point perspective drawing.

The drawing view includes the shape of the structure plus all materials and finishes.

The drawing view shows all depth (except oblique lines) projected to two vanishing points.

All lines are distinct, dark, easily read and of the appropriate line weight and type.

The finished drawing view is neat and clear of smudges and completed within an eight-hour time period. (Time is based on using floor plan in Attachment I to complete the skill.)

PERFORMANCE ELEMENTS

1. Review floor plan and exterior elevations.
2. Draw picture plane line (PPL).
3. Determine cutting plane line on floor plan and locate on PPL.
4. Position floor plan on picture plane.
5. Locate center of vision.
6. Establish station point (SP).
7. Draw perpendicular projector from SP to PPL.
8. Draw horizontal ground line (GL).
9. Draw elevation on GL.
10. Locate horizontal line (HL).
11. Drop vertical projector from PPL to HL on right and left which locate right and left vanishing points (VPR and VPL).
12. Draw vertical true height from PPL to GL.
13. Locate top and bottom of perspective from true height lines to VPR and VPL.
14. Continue drawing all remaining lines and features on perspective.
15. Remove all unnecessary lines and clean drawing.
16. Check drawing.

PERFORMANCE ASSESSMENT CRITERIA

PRODUCT

The finished exterior two-point perspective view is correctly drawn and shows all necessary details and information.

PROCESS

All performance elements are critical for correctly drawing an exterior two-point perspective view. The steps of performance are numbered to show an appropriate sequence of work completion; however, a different sequence of steps may be used.

CHECK COMPLETED ARCHITECTURAL PLANS.

SKILL STANDARD

CONDITIONS OF PERFORMANCE

Given the following:

Drafting kit (Attachment A) or CAD workstation
Completed set of architectural plans
Architectural/engineering notes/data
Colored pencils
Manufacturers' catalogs
Construction specifications

WORK TO BE PERFORMED

Check completed architectural plans (Excluding perspective drawings is recommended).

PERFORMANCE CRITERIA

The plans reflect all architectural/engineering notes, sketches, and designs.

All lines are distinct, dark, easily read and of the appropriate line weight and type.

All errors and/or omissions are identified on the plans within an eight-hour time period.

PERFORMANCE ELEMENTS

1. Compare completed plan with architectural/engineering notes/data, manufacturers' catalogs and construction specifications.
2. Check drawing for accuracy (e.g., wall placement and size, feature sizes, door/window placement, etc.).
3. Check and verify dimensions.
4. Check and verify notes, lettering, symbols and references.
5. Check and verify title block information.
6. Check plan for line quality and type.

PERFORMANCE ASSESSMENT CRITERIA

PRODUCT

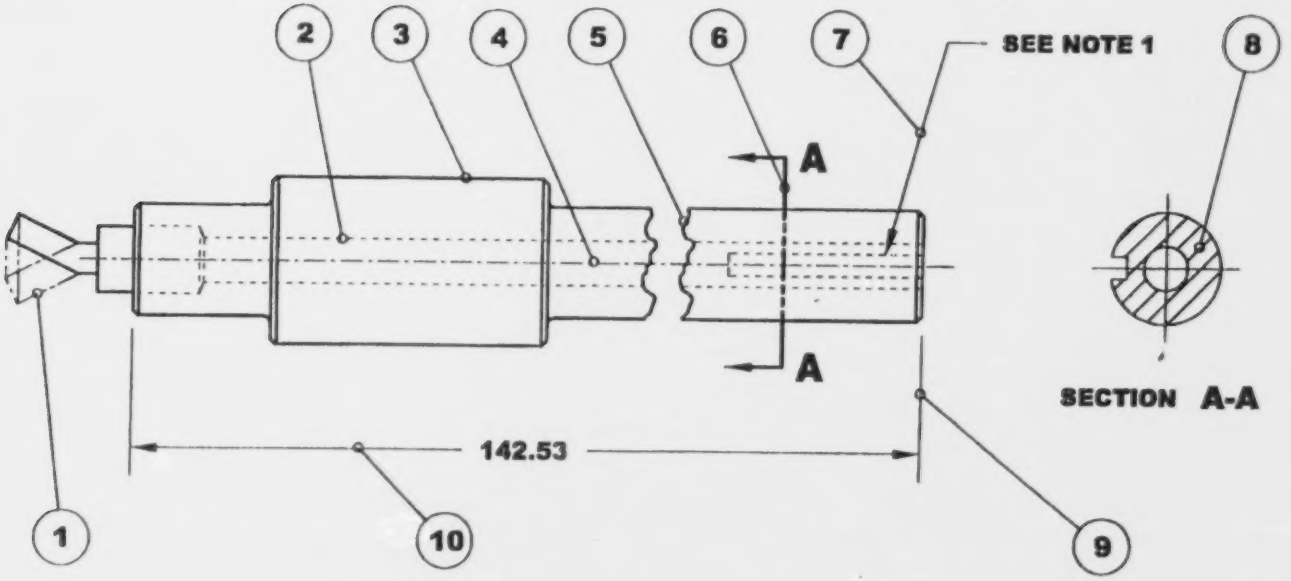
The checked architectural plan is completed with all errors and/or omissions correctly identified.

PROCESS

All performance elements are critical for architectural plan checking. The steps of performance are numbered to show an appropriate sequence of work completion; however, a different sequence of steps may be used.

DRAFTING KIT	
	Lead holder/pencil
	Protractor
	Lead Pointer
	Eraser
	Erasing shield
	30-60-90 Triangle
	45-45-90 Triangle
	Drafting tape
	T-square/parallel bar
	Architect's scale
	Engineer's scale
	Metric scale
	Civil scale
	Instrument set (compass, dividers, etc)
	Lettering guide
	Templates (circle, arrowhead, etc.)
	Drafting tape
	Dusting brush
	Dusting powder

DRAFTING LINE TYPES (ALPHABET OF LINES)



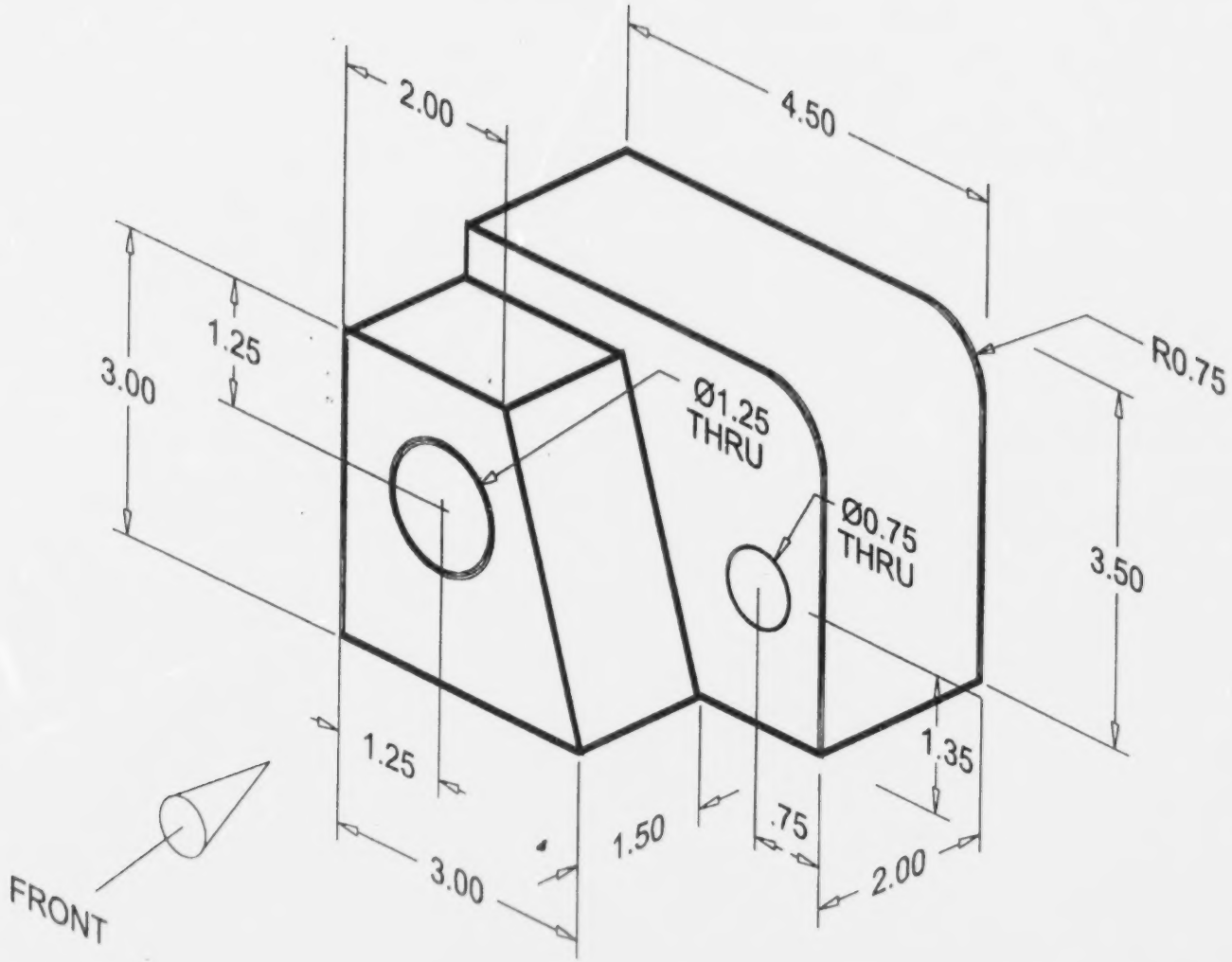
ITEM	TYPE	ITEM	TYPE
1	PHANTOM LINE	6	CUTTING PLANE LINE
2	HIDDEN LINE	7	LEADER LINE
3	VISIBLE OBJECT LINE	8	SECTION LINE
4	CENTER LINE	9	EXTENSION LINE
5	BREAK LINE	10	DIMENSION LINE

TECHNICAL DESIGN AND DRAWING (DRAFTING) UTILIZE A GRAPHIC LANGUAGE TO COMMUNICATE IDEAS AND CONCEPTS. THIS GRAPHIC LANGUAGE HAS BEEN DEVELOPED OVER THE CENTURIES BY ARCHITECTS, ENGINEERS, DESIGNERS, AND DRAFTERS UNTIL IT COMES TO TODAY'S DRAFTERS IIN ITS PRESENT FORM.

SO, WHAT IS DRAFTING? IT IS THE COMMON LANGUAGE OF INDUSTRY. DRAFTERS PRODUCE GRAPHICAL REPRESENTATIONS OF IDEAS OR PRODUCTS TO BE PROCESSED, MANUFACTURED, OR CONSTRUCTED. ENGINEERS, DESIGNERS, AND DRAFTERS UTILIZE THE DRAWING AND DESIGN PROCESS TO DEFINE, ESTABLISH, CREATE AND TRANSFER TECHNICAL INFORMATION. VIRTUALLY EVERYTHING THAT HAS BEEN CONSTRUCTED OR PRODUCED FIRST STARTED AS AN IDEA THAT WAS TRANSFERED ONTO A MDRAWING USING THE GRAPHICAL LANGUAGE OF INDUSTRY.

NOW, CONTINUE TO PRACTICE LETTERING BOTH LETTERS AND NUMBERS BY FOLLOWING THE EXAMPLES BELOW.

AAAA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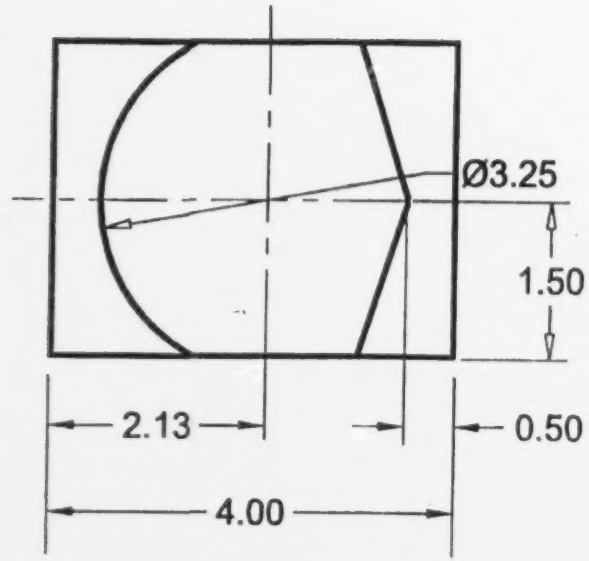
2.00
FRONT


Ø3.25
1.50
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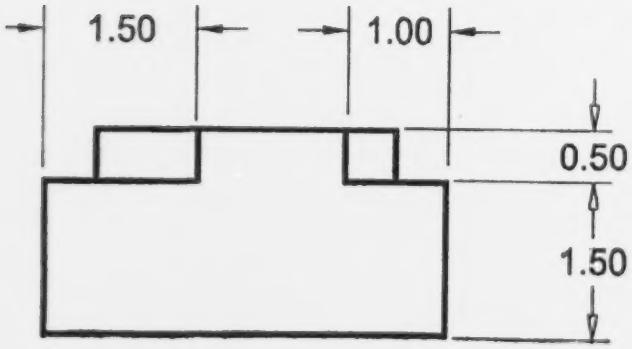
4.00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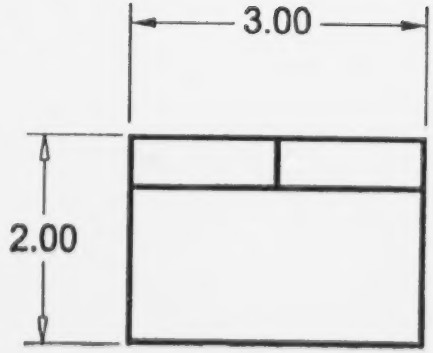
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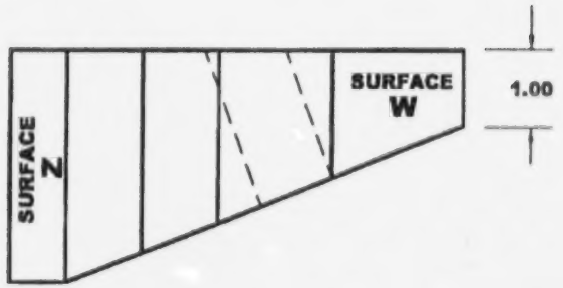
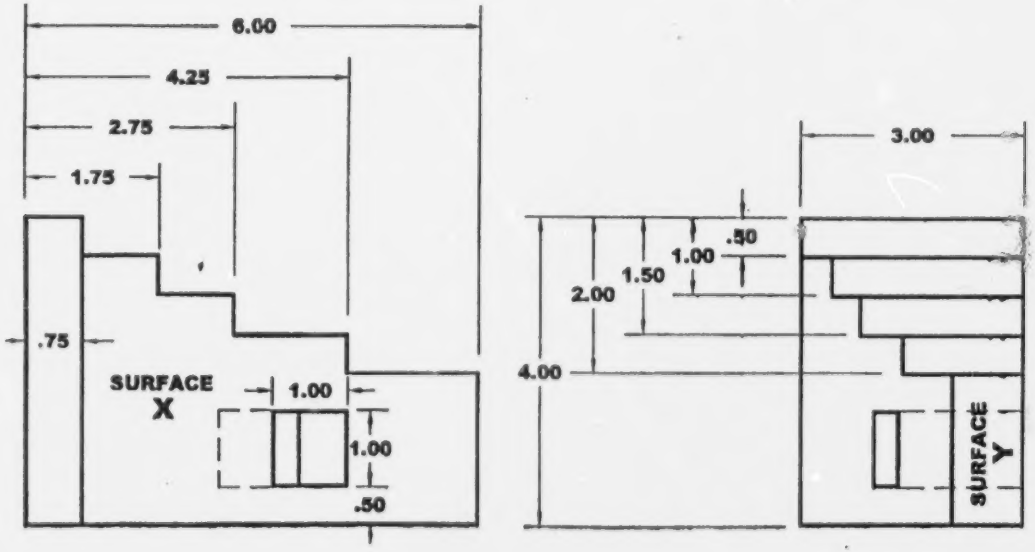
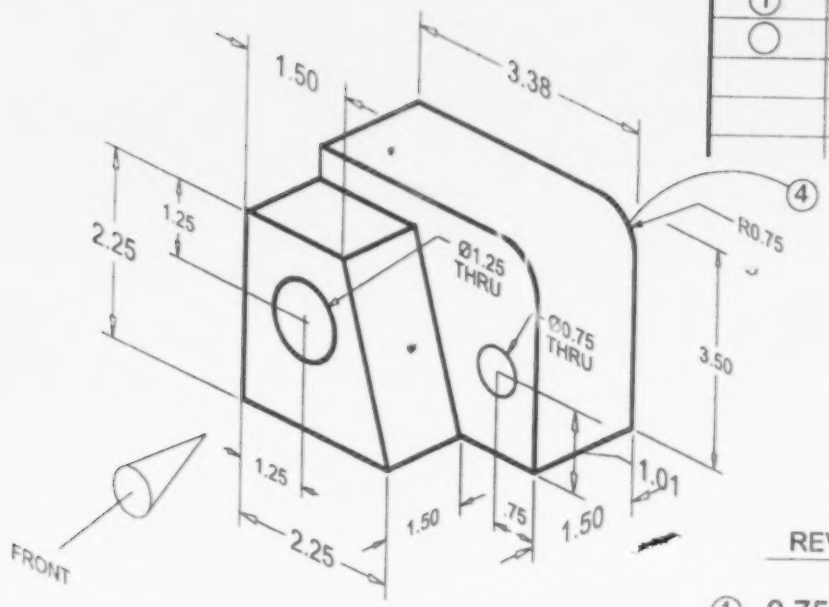


NOTE EACH OF THE FOLLOWING:

- SURFACE W TO BE MACHINE FINISH.
- SURFACE X TO BE GROUND AND POLISHED.
- SURFACE Y TO BE STAMPED WITH PART NUMBER IN CHARACTERS 4MM HIGH.
- SURFACE Z TO BE KNURLED FINISH.
- FILLETS & ROUNDS 1/8 R UNLESS OTHERWISE SPECIFIED.
- PART IS SAE 1020 - 1 REQUIRED.



REVISION TABLE			
SYMBOL	DESCRIPTION	DATE	APPROVAL
①			
○			

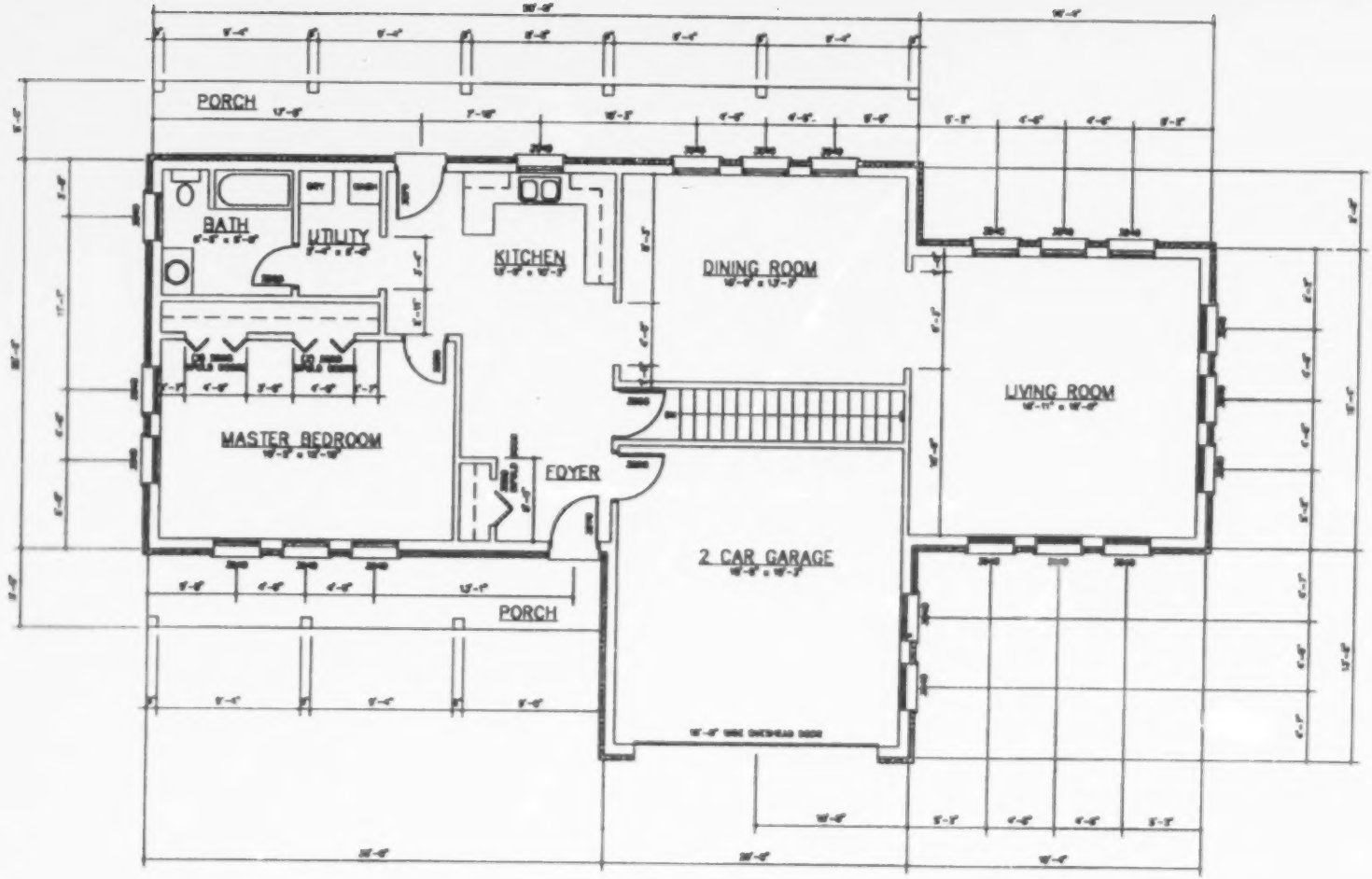


REVISIONS TO BE MADE

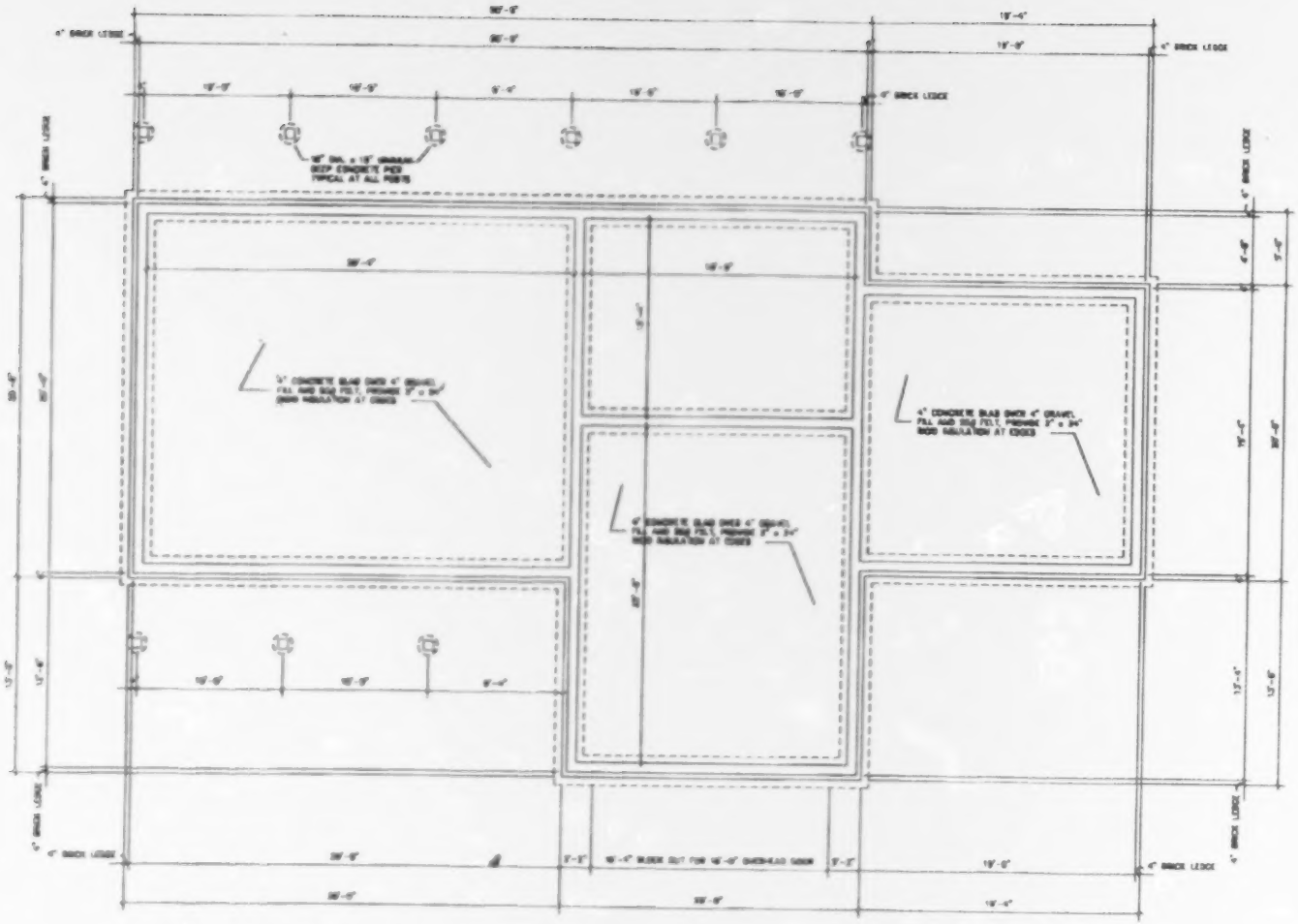
① 0.75 DIA TO 0.875 DIA
② 1.25 DIA TO 1.50 DIA
③ 1.01 TO 1.25
④ 0.75 R TO 0.875 R
⑤ 0.75 TO 0.80
⑥ 1.50 DIA HOLE X 2.00 DEEP

PLOT PLAN

SCALE 1" = 20'-0"



FIRST FLOOR PLAN



FIRST FLOOR FOUNDATION PLAN

ROOF PLAN

anchor bolt
architect
asphalt shingles
awning window
backfill
balcony
basement
batt insulation
beam
bearing wall
bench mark
bill of material
blueprint
building code
building permit
casement window
cement
central air conditioning
central heating
chimney
clad
collar beam
column
concrete
concrete block
contour
cornice
crawl space
cricket
cross bracing
cross bridging
dead load
double-hung window
downspout
drip edge
easement
eave
elevation
excavation
façade
fascia
fixture
flashing
floor plan
flue
footing
foundation
framing
frieze
gable
girder
grade
gypsum board
header
headroom
hearth
hip roof
insulation
jamb
joist
laminated beam
lintel
live load
load
load bearing wall
lot line
masonry
moisture barrier
overhang
partition
perspective
pier
pilaster
pitch
plan
plot
plywood
post
rafter
rebar
reinforced concrete
ridge
rigid insulation
rise
run
saddle
sash
schedule
section
setback
sheathing
shed roof
shingles
siding
sill
sill plate
sill sealer
slab
slope
sole plate
soffit
span
specification
steel beam
storm sewer
stud
subfloor
top plate
tread
treated
truss
utilities
valley
vapor barrier
ventilation
water heater
waterproof
weep holes
zoning

Academic Skills	Skills (and related knowledge) contained in the subject areas and disciplines addressed in most national and state educational standards, including English, mathematics, science, etc.
Assessment	A process of measuring performance against a set of standards through examinations, practical tests, performance observations and/or the completion of work portfolios.
Content Standard	A specification of what someone should know or be able to do to successfully perform a work activity or demonstrate a skill.
Critical Work Functions	Distinct and economically meaningful sets of work activities critical to a work process or business unit which are performed to achieve a given work objective with work outputs that have definable performance criteria. A critical work function has three major components: • **Conditions of Performance:** The information, tools, equipment and other resources provided to a person for a work performance. • **Work to Be Performed:** A description of the work to be performed. • **Performance Criteria:** The criteria used to determine the required level of performance. These criteria could include product characteristics (e.g., accuracy levels, appearance), process or procedure requirements (e.g., safety, standard professional procedures) and time and resource requirements. The IOSSCC requires that these performance criteria be further specified by more detailed individual performance elements and assessment criteria.
Credentialing	The provision of a certificate or award to an individual indicating the attainment of a designated set of knowledge and skills and/or the demonstration of a set of critical work functions for an industry/occupational area.
Illinois Occupational Skill Standards and Credentialing Council (IOSSCC)	Legislated body representing business and industry which establishes skill standards criteria, endorses final products approved by the industry subcouncil and standards development committee and assists in marketing and dissemination of occupational skill standards.
Industry	Type of economic activity, or product or service produced or provided in a physical location (employer establishment). They are usually defined in terms of the Standard Industrial Classification (SIC) system.

Industry Subcouncil	Representatives from business/industry and education responsible for identifying and prioritizing occupations for which occupational performance skill standards are adapted, adopted or developed. They establish standards development committees and submit developed skill standards to the IOSSCC for endorsement. They design marketing plans and promote endorsed skill standards across the industry.
Knowledge	Understanding the facts, principles, processes, methods and techniques related to a particular subject area, occupation or industry.
Occupation	A group or cluster of jobs, sharing a common set of work functions and tasks, work products/services and/or worker characteristics. Occupations are generally defined in terms of a national classification system including the Standard Occupational Classification (SOC), Occupational Employment Statistics (OES) and the Dictionary of Occupational Titles (DOT).
Occupational Cluster	Grouping of occupations from one or more industries that share common skill requirements.
Occupational Skill Standards	Specifications of content and performance standards for critical work functions or activities and the underlying academic, workplace and occupational knowledge and skills needed for an occupation or an industry/occupational area.
Occupational Skills	Technical skills (and related knowledge) required to perform the work functions and activities within an occupation.
Performance Standard	A specification of the criteria used to judge the successful performance of a work activity or the demonstration of a skill.
Product Developer	Individual contracted to work with the standard development committee, state liaison, industry subcouncil and IOSSCC for the adaptation, adoption or development of skill standards content.
Reliability	The degree of precision or error in an assessment system so repeated measurements yield consistent results.
Skill	A combination of perceptual, motor, manual, intellectual and social abilities used to perform a work activity.
Skill Standard	Statement that specifies the knowledge and competencies required to perform successfully in the workplace.

Standards Development Committee	Incumbent workers, supervisors and human resource persons within the industry who perform the skills for which standards are being developed. Secondary and postsecondary educators are also represented on the committee. They identify and verify occupational skill standards and assessment mechanisms and recommend products to the industry subcouncil for approval.
State Liaison	Individual responsible for communicating information among all parties (e.g., IOSSCC, subcouncil, standard development committee, product developer, project director, etc.) in skill standard development.
Third-Party Assessment	An assessment system in which an industry-designated organization (other than the training provider) administers and controls the assessment process to ensure objectivity and consistency. The training provider could be directly involved in the assessment process under the direction and control of a third-party organization.
Validity	The degree of correspondence between performance in the assessment system and job performance.
Workplace Skills	The generic skills essential to seeking, obtaining, keeping and advancing in any job. These skills are related to the performance of critical work functions across a wide variety of industries and occupations including problem solving, leadership, teamwork, etc.

APPENDIX B

ILLINOIS OCCUPATIONAL SKILL STANDARDS AND CREDENTIALING COUNCIL

Margaret Blackshere	AFL-CIO
Judith Hale	Hale Associates
Michael O'Neill	Chicago Building Trades Council
Janet Payne	United Samaritans Medical Center
Gene Rupnik	Hospitality Industry
Jim Schultz	Illinois Retail Merchants Association Walgreen Company
Larry Vaughn	Illinois Chamber of Commerce

APPENDIX C

TRANSPORTATION, DISTRIBUTION AND LOGISTICS SUBCOUNCIL

Sam Anderson	Vice President American Postal Workers' Union
Alexi Carli	Subcouncil Chair Region Manager of Health/Safety United Parcel Service
John Burner	Assistant State Director United Transportation Union
Joseph Ciaccio	President Illinois Railroad Association
Elwood Flowers	Lobbyist Amalgamated Transit
Carol Gallman	Administrative Assistant International Association of Machinists.
Karl Gnadt	Assistant to the Managing Director Champaign/Urbana Mass Transit District
Donald Good	Manager, Transportation Network U.S. Postal Service, Chicago Central P&DC
Wayne Grieder	President Archer Kostner Automotive
Thomas Nicely	Logistic Specialist JKC Trucking Company
David Regner	Illinois School Transportation Association
Roger Roberson	CEO PFT/Roberson Corporation
Dianna Rushing	Association of Flight Attendant's Council
Sheila Schroeder	Manager Ground Employment ORDEX- United
Joseph Szabo	State Director United Transportation Union
Paul Tatman	President Tatman Auto Body, Inc.

APPENDIX C *(Continued)*

TRANSPORTATION, DISTRIBUTION AND LOGISTICS SUBCOUNCIL

Russ Verona	President East Rockford Collision Center-North
Michael Wagner	General Manager Alpha Special Services
Vince Waters	Illinois Chapter of the American Concrete Pavement Association
Gerald Zero	Secretary/Treasurer Illinois AFL-CIO Teamsters' Union
Ron Engstrom	State Liaison Illinois State Board of Education

APPENDIX D

ARCHITECTURAL DRAFTING CLUSTER STANDARDS DEVELOPMENT COMMITTEE

Mark Anderson	Bloomington Area Vocational
Dale Bradley	ITW Impro
Tim Branch	Head Draftsman McClure Engineering Associates
Ryan Brown	Illinois State University
Daniel Burris	Senior Engineer Tech Crawford, Murphy and Tilly
Jamie Gamauf	ARIA Group Architects
Don Jenkins	State Farm Insurance
Chip Meiner	Computer Drafting Service
Dan Roush	Design Synergy Group
David Schippert	Normal West High School
Pat Spicer, Ph.D.	Product Developer Western Illinois University
Ron Engstrom	State Liaison Illinois State Board of Education

APPENDIX E

TRANSPORTATION, DISTRIBUTION AND LOGISTICS SUBCOUNCIL ARCHITECTURAL DRAFTING CLUSTER SKILL STANDARDS RECOGNITION PROPOSAL

I. Occupational Definition and Justification

A. Occupational Definition

The Transportation, Distribution and Logistics and Manufacturing Subcouncils identified drafting/CAD as a major cluster. Drafters translate the ideas and rough sketches of engineers, architects and scientists into detailed drawings which enable other workers to manufacture the product or construct the project. Their duties may include interpreting directions given to them, making sketches, preparing drawings to scale, and specifying details. They use various drafting tools, engineering practices and math to complete drawings.

Drafters increasingly use computer-aided design (CAD) systems. These systems make it easy to prepare many variations of a design and allow it to be viewed from angles not usually available with traditional drafting methods.

The Basic core skills are those skills that are applicable to all occupations in the drafting cluster occupational area.

B. Employment and Earnings Opportunities

1. Education and Training Requirements

The occupations in this occupational cluster do require "basic workplace skills and technical training."

2. Employment Opportunities

Employers include engineering and architectural firms, construction companies, and government agencies. Draftsperson may advance to positions requiring more skill and experience such as technical assistant, illustrator, senior drafter, designer or supervisor.

Nationally, slower than average employment growth is expected for drafters through the year 2006. While in Illinois, a slight decline is expected in employment of drafters. Widespread use of computer-aided design techniques may reduce the need for drafters, yet increase the demand for more highly skilled applicants. There are many people completing training programs that qualify them for work as drafters. Competitions for job openings will remain keen. Opportunities will be best for those trained in the use of computer-aided drafting systems and electronic drafting equipment.

3. Earnings Opportunities

	Middle Range Annual Earnings, 1999
Draftsperson	$24,585 - $32,880*
Technical Assistant	$30,800 - $39,000*
Illustrator	$30,800 - $39,000*

** Middle range is the middle 50%, i.e., one-fourth of persons in the occupation earn below the bottom of the range and one-fourth of persons in the occupation earn above the top of the range.*

Sources: 1999 Occupational Employment Statistics: Wage Data and *Occupational Projections 2006*, Illinois Department of Employment Security, Economic Information and Analysis Division; *Horizons Career Information System;* and, *Encyclopedia of Careers & Vocational Guidance-10th Edition.*

II. Occupational Standards and Credentials

A. Occupational Standards

Occupations in the architectural drafting standards cluster are divided into two components: Basic Core Drafting Skills and Architectural Drafting Skills.

B. Assessment and Credentialing System

III. Industry Support and Commitment

A. Industry Commitment of Development and Updating

1. The Subcouncil and the Standards Development Committee developed these performance skill standards. The development effort utilized the following steps:
   a. Identification of performance skills.
   b. Review of resources.
   c. Development of draft performance skills.
   d. Convening of Standards Development Committee.
   e. Validation and approval of performance skills by Standards Development Committee.
   f. Review of skill standards by Standards Development Committee.
   g. Review and approval of the skill standards by the Subcouncil.
   h. Endorsement of skill standards by the Council.
2. The Standards Development Committee members recommended that individuals (when possible) learn hand drafting skills before CAD skill manipulation.
3. A list of Subcouncil and Standards Development Committee members may be seen in Appendixes C and D, respectively.

B. Industry Commitment for Marketing

The Transportation, Distribution and Logistics Subcouncil is committed to marketing and obtaining support and endorsement from the leading industry associations impacted by the skill standards. Upon recognition/endorsement of the skill standards by the IOSSCC, the Subcouncil strongly recommends developing and providing an in-service/seminar package for members of the Transportation, Distribution and Logistics Subcouncil to provide awareness and to obtain full industry commitment to the development of a full industry marketing plan.

The Subcouncil encourages that the occupational skill standards be made available to the public including student, parents, workers, educators at all levels, employers and industry organizers.

A. Developing an Employment Plan	1. Match interests to employment area. 2. Match aptitudes to employment area. 3. Identify short-term work goals. 4. Match attitudes to job area. 5. Match personality type to job area. 6. Match physical capabilities to job area. 7. Identify career information from counseling sources. 8. Demonstrate a drug-free status.
B. Seeking and Applying for Employment Opportunities	1. Locate employment opportunities. 2. Identify job requirements. 3. Locate resources for finding employment. 4. Prepare a resume. 5. Prepare for job interview. 6. Identify conditions for employment. 7. Evaluate job opportunities. 8. Identify steps in applying for a job. 9. Write job application letter. 10. Write interview follow-up letter. 11. Complete job application form. 12. Identify attire for job interview.
C. Accepting Employment	1. Apply for social security number. 2. Complete state and federal tax forms. 3. Accept or reject employment offer. 4. Complete employee's Withholding Allowance Certificate Form W-4.
D. Communicating on the Job	1. Communicate orally with others. 2. Use telephone etiquette. 3. Interpret the use of body language. 4. Prepare written communication. 5. Follow written directions. 6. Ask questions about tasks.
E. Interpreting the Economics of Work	1. Identify the role of business in the economic system. 2. Describe responsibilities of employee. 3. Describe responsibilities of employer or management. 4. Investigate opportunities and options for business ownership. 5. Assess entrepreneurship skills.
F. Maintaining Professionalism	1. Participate in employment orientation. 2. Assess business image, products and/or services. 3. Identify positive behavior. 4. Identify company dress and appearance standards. 5. Participate in meetings in a positive and constructive manner. 6. Identify work-related terminology. 7. Identify how to treat people with respect.

G. Adapting to and Coping with Change	1. Identify elements of job transition. 2. Formulate a transition plan. 3. Identify implementation procedures for a transition plan. 4. Evaluate the transition plan. 5. Exhibit ability to handle stress. 6. Recognize need to change or quit a job. 7. Write a letter of resignation.
H. Solving Problems and Critical Thinking	1. Identify the problem. 2. Clarify purposes and goals. 3. Identify solutions to a problem and their impact. 4. Employ reasoning skills. 5. Evaluate options. 6. Set priorities. 7. Select and implement a solution to a problem. 8. Evaluate results of implemented option. 9. Organize workloads. 10. Assess employer and employee responsibility in solving a problem.
I. Maintaining a Safe and Healthy Work Environment	1. Identify safety and health rules/procedures. 2. Demonstrate the knowledge of equipment in the workplace. 3. Identify conservation and environmental practices and policies. 4. Act during emergencies. 5. Maintain work area. 6. Identify hazardous substances in the workplace.
J. Demonstrating Work Ethics and Behavior	1. Identify established rules, regulations and policies. 2. Practice cost effectiveness. 3. Practice time management. 4. Assume responsibility for decisions and actions. 5. Exhibit pride. 6. Display initiative. 7. Display assertiveness. 8. Demonstrate a willingness to learn. 9. Identify the value of maintaining regular attendance. 10. Apply ethical reasoning.
K. Demonstrating Technological Literacy	1. Demonstrate basic keyboarding skills. 2. Demonstrate basic knowledge of computing. 3. Recognize impact of technological changes on tasks and people.
L. Maintaining Interpersonal Relationships	1. Value individual diversity. 2. Respond to praise or criticism. 3. Provide constructive praise or criticism. 4. Channel and control emotional reactions. 5. Resolve conflicts. 6. Display a positive attitude. 7. Identify and react to sexual intimidation/harassment.
M. Demonstrating Teamwork	1. Identify style of leadership used in teamwork. 2. Match team member skills and group activity. 3. Work with team members. 4. Complete a team task. 5. Evaluate outcomes.

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